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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs Pursuant to Public Utilities Code Section 2827.1, and to Address Other Issues Related to Net Energy Metering.

Rulemaking 14-07-002
(Filed July 10, 2014)

COMMENTS OF THE INTERSTATE RENEWABLE ENERGY COUNCIL, INC. ON THE ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENT ON POLICY ISSUES ASSOCIATED WITH DEVELOPMENT OF NET ENERGY METERING SUCCESSOR STANDARD CONTRACT OR TARIFF

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I. Introduction

On February 23, 2015, Administrative Law Judge (ALJ) Simon issued a Ruling soliciting formal input into fourteen questions regarding elements of a successor standard contract/tariff that will be developed to replace the current net energy metering (NEM) tariff. The main objective of this proceeding is to establish the successor to the NEM tariff, based in part on the results of running the "Public Tool" developed for the Public Utilities Commission (Commission) by Energy Division and the consulting firm of Energy + Environmental Economics (E3), relying on public input regarding the design and usage of the Public Tool. Beyond this quantitative aspect however, the successor contract/tariff must also accommodate several statutory considerations regarding design and implementation. The fourteen questions posed by the ALJ address these statutory considerations in addition to several related program administration issues.

In October 2014, the Interstate Renewable Energy Council, Inc. (IREC) provided input to the Commission regarding the development of a methodology through the use of the Public Tool to test options for a successor to the existing NEM tariffs. IREC now submits these comments to address important additional policy elements that will be essential to the implementation of an effective NEM successor contract/tariff.

IREC is a non-profit organization whose goal is to enable greater use of clean energy in a sustainable way by: (1) introducing regulatory policy innovations that empower consumers and support a transition to a sustainable energy future; (2) removing technical constraints to distributed energy resource integration; and (3) developing and coordinating national strategies and policy guidance to provide consistency on these policies centered on best practices and solid research. The scope of IREC's work includes expanding programs that facilitate consumers' ability to host a renewable energy system to directly self-supply energy needs or sell energy.

In these comments, IREC provides responses to all fourteen of the questions posed by the ALJ. We also refer to the Joint Solar Parties' comments as appropriate to avoid duplication on certain issues. Here, IREC provides a particular focus on five issues:

1) In response to Question 3, IREC outlines its CleanCARE program for disadvantaged communities, with the proposal itself provided in an attachment;
2) In response to Question 5, IREC urges the Commission to shift away from the Ratepayer Impact Measure (RIM) now that NEM is widely available;
3) Also in response to Question 5, IREC suggests that valuation of solar energy coupled with storage will require assumptions regarding storage system size and dispatchability;
4) In response to questions #7 and #8, IREC provides insight on interconnection issues based on its extensive participation in the Rule 21 and Distribution Resources Plan (DRP) proceedings; and
5) In response to Question 11, IREC suggests the virtual NEM (VNEM) program could

be substantially improved by removing the requirement of a single service delivery point (SDP).

II. Responses to the Commission's Questions

For the sake of brevity, the Commission's questions are not repeated, though each has been shortened to a few lines to reference the issue being addressed.

1. Distinctions between a standard contract and a tariff, the benefits of one over the other from the perspective of customers and program administrators, and any differentiation that should be considered.

In Section 2827(c)(1), the current NEM statute specifies that every electric utility is required to "develop a standard contract or tariff providing for net energy metering." The Commission has implemented this directive via the very effective NEM tariff. Similarly, new Section 2827.1(b) directs the Commission to "develop a standard contract or tariff, which may include net energy metering . . . ." Setting aside its specific contents, IREC suggests that a tariff-based approach has been extremely effective to date and should continue going forward. In addition, a tariff would provide participating customers and the Commission greater certainty when it comes to resolving any complaints related to NEM or its successor program, as discussed in more detail in the Joint Solar Parties' comments.

As discussed in further detail in response to Question 11, IREC also recommends that the Commission continue to require that the investor-owned utilities (IOUs) offer additional tariffs to address particular market segments, specifically the VNEM and NEM aggregation (NEMA) tariffs. Although IREC does not propose additional, market segment-specific tariffs here, we recognize that there may be other tariffs that can further support the sustainable growth of customer-sited distributed generation (DG) in particular market segments. IREC looks forward to reviewing any such proposals filed by other parties.

2. *Measures, time period and definitions the Commission should use to determine sustainable growth of customer-sited renewable DG.*

Fundamentally, growth in customer-sited DG is driven by customers' interest in installing renewable energy on their homes and non-residential property due to a wide variety of motivations, including both environmental concerns and energy bill savings. Public policies, such as NEM, have been developed to support consumer interest in on-site DG and its various benefits. Customers benefit as the customer-sited DG market grows, as prices continue to drop and make renewable energy more accessible to more consumers. IREC suggests that continued "sustainable growth" of the customer-DG market requires meeting this customer demand, allowing more consumers to access renewable energy at fair and reasonable prices. We also believe that it requires consistency and avoidance of market disruption, including avoiding making abrupt changes in policy, which are likely to cause customer confusion and have a chilling effect on market growth. As more and more customers adopt on-site DG, the market will necessarily begin to level off as fewer new customers interested in DG emerge. As the Joint Solar Parties demonstrate in their comments, however, California is far from having reached this point.

IREC urges the Commission to implement policies that continue to allow DG providers to meet customer demand for on-site DG. In the near term, IREC agrees with the Joint Solar Parties that this will mean year-over-year growth in the industry, as measured by megawatts (MW) installed, even as percentage growth declines due to an ever-expanding base. In the longer term, as the on-site DG customer growth curve levels off and customer-sited DG is more pervasive, the Commission may once again need to revisit its policies on these issues.

It is important to rely on NEM custom installation data for evaluation of recent growth trends. Appropriately, the Joint Solar Parties rely on installation data for 2012-2014 provided in data responses by the IOUs to the California Solar Energy Industries Association (CALSEIA), showing 2014 installations of 690 MW, which was an increase of 31% over 2013 installations. By contrast, the California Solar Initiative (CSI) data available on the GoSolar California page does not reflect recent market growth. With the CSI program closing for some customer segments and offering minimal incentives for other customers, the data for 2014 shows only 282.4 MW.[1]

3. *Considerations of "disadvantaged communities," including measuring growth and barriers faced by customers in disadvantaged communities in adopting DG.*

At the outset, IREC notes that we have already proposed the CleanCARE program in this docket as an alternative designed to improve solar access to residential customers in disadvantaged communities pursuant to Assembly Bill (AB) 327. CleanCARE is also under consideration in the Commission's CARE docket (A.14-11-007 et al.). IREC believes that CleanCARE implementation could effectively serve to increase access to renewable energy for customers in disadvantaged communities and result in new renewable energy facilities sited in those communities. IREC has attached an updated version of our CleanCARE program proposal to these comments, which incorporates input from a wide variety of stakeholders, including

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1 *See* California Solar Statistics, http://californiasolarstatistics.ca.gov/reports/monthly_stats (using annual filter and viewing general market, MASH and SASH programs).

entities representing solar, environmental and consumer interests.

AB 327 does not define the term “disadvantaged communities.” IREC supports using the California Communities Environmental Health Screening Tool (CalEnviroScreen) to identify the 25 percent of census tracts that represent the most disadvantaged communities. The census tracts identified by CalEnviroScreen should represent a substantial percentage of the State geographically and include many potential sites for solar development. IREC remains open to other definitions of “disadvantaged communities” and looks forward to reviewing ideas submitted by other parties. Ultimately, IREC suggests that any definition of “disadvantaged communities” that the Commission adopts be clear and promote easy implementation of programs to meet the needs of these communities going forward.

People living in disadvantaged communities, like the low-income customer population more generally, often face unique barriers to adopting customer-sited DG. For example, these customers are not as likely to own their roofs, either because they are renters and/or live in multi-tenant buildings. They are also less likely to have access to upfront capital or affordable lines of credit. Similarly, they are likely to have a small or nonexistent tax liability, which would prevent full monetization of tax credits. In addition, many of these customers likely have lower electric rates, due to the California Alternate Rates for Energy (CARE) discount, that result in lower monthly bill savings from NEM compared with a non-CARE customer with the same usage profile. Other potential barriers include ill-suited marketing and outreach to low-income customers and a minimum participation threshold (e.g., at least one kilowatt (kW)) in shared or on-site renewable energy programs. Any proposal adopted here should address at least some of these barriers, as well as any others raised by other parties.

IREC’s CleanCARE proposal addresses many of the barriers to low-income participation.

In essence, the program would provide an option to reroute a portion of the current CARE program funds associated with the CARE rate discount toward purchasing renewable generation from a third-party developer for the benefit of CARE-eligible customers. Participants in CleanCARE would have to meet the eligibility requirements for CARE but would choose CleanCARE's alternative bill reduction option instead of receiving the CARE rate discount, which would guarantee them the same or better bill reductions as they would receive under CARE rates. Because CleanCARE would require no independent contribution by participating customers, but instead would rely entirely on shifting the CARE subsidy, it overcomes the capital and credit barriers described above. In addition, CleanCARE would rely on shared renewable energy generation, which would allow customers who do not own their own roofs or have suitable roof space to participate. CleanCARE would also rely on and leverage CARE program marketing, outreach and education, and develop tailored materials and messages to effectively reach CARE customers who could benefit from CleanCARE.

IREC proposes that all CleanCARE generation facilities would be sited in disadvantaged communities, allowing many participants to access clean energy in their own communities. Based on an initial exploration of census data, IREC expects that there is significant overlap between CARE enrollment and customers living in disadvantaged communities. We recognize, however, that (1) some CARE customers do not live in these communities and (2) some customers in these communities are not eligible for the CARE program. Even so, given this overlap and by requiring all projects to be sited in disadvantaged communities, IREC believes that CleanCARE meets AB 327's requirement that it be "designed for growth among residential customers in disadvantaged communities." In addition, IREC proposes that one way to phase in CleanCARE would be first to target CARE customers living in disadvantaged communities and then expand the program from there, by allowing CARE customers outside of disadvantaged communities to participate, but still siting projects within disadvantaged communities.

However the phase-in is accomplished, IREC suggests that CleanCARE be introduced on a pilot basis, with voluntary, limited enrollment that gradually scales up depending on the success of the program. In this regard, one way to measure the success in reaching disadvantaged communities would be by the number of installed megawatts (MW) in the program and by its voluntary adoption rate among CARE participants.

Finally, IREC believes that any program that focuses on disadvantaged communities (CleanCARE or otherwise) should warrant separate treatment regarding the benefits and costs of the program with respect to other ratepayers. Given the particular challenges faced by disadvantaged communities, IREC suggests that the Commission should not restrict itself to benefit-cost neutrality and non-participant indifference when implementing alternatives to reach customers in disadvantaged communities, at least in the near term. One way to think of this is that saving $10 on a low income customer's utility produces a greater societal benefit than saving $10 on a high income customer's bill. Given that many of these communities have been disproportionately affected by much more polluting forms of energy generation, the opportunity to transform their landscapes with clean, renewable assets brings considerable environmental and social benefits, including reduced pollution, job creation and local economic development. Additionally, any program designed for disadvantaged communities should also fall under the general statutory directive for the Commission to ensure that customer-sited DG continues to grow sustainably. Low-income customers historically have not had access to these markets; for markets to be sustainable going forward, the Commission should strive to ensure wide-ranging access for as many participants as possible.

Please see the attachment to these comments for IREC's newest version of its CleanCARE proposal, which has benefited greatly from the involvement and support of CALSEIA and Vote Solar over the past several months, and from helpful comments provided by various consumer advocate and environmental parties. IREC looks forward to continuing to develop the CleanCARE proposal with further input from these parties, as well as the utilities and any other interested parties.

4. ***Ensuring that the standard contract/tariff is "based on the costs and benefits of the renewable electrical generation facility," in accordance with Public Utilities Code Section 2827.1(b)(3), including what costs and benefits should be considered and what metrics should be used to measure them.***

Only the Participant Test allows for consideration of both the cost of the renewable electrical generation facility and the greatest benefit of the facility—reduced utility bills.[2] No other test in the Standard Practice Manual (SPM) sufficiently covers both elements that the Commission is required to consider under Public Utilities Code Section 2827.1(b)(3). IREC supports the Joint Solar Parties' comments on this question, but considers it useful to review what elements are covered by each test to demonstrate that only the Participant Test can be used to address Section 2827.1(b)(3).

The Ratepayer Impact Measure (RIM) and the Administrator Test (also known as the Utility Cost Test) do not consider the "cost of the renewable energy facility," and therefore miss

2 *Standard Practice Manual* at 8 (Oct. 2001) ("The Participants Test is the measure of the quantifiable benefits and costs to the customer due to participation in a program.").

half of the evaluation required by Section 2827.1(b)(3).[3] The primary cost under the RIM is lost utility revenue, based on a NEM customer's lower energy purchases from the utility.[4] In the case of NEM, the RIM looks at the cost of the program to non-participating customers, but not at the cost of the facility itself.[5] The costs and benefits under the RIM of a five kW solar array on a customer's home would be the same whether the array cost $10,000 or $100,000; clearly, the cost of the facility is not a factor and the RIM is inapplicable to address Section 2827.1(b)(3). Likewise, the Administrator Test is indifferent to the cost of the facility; it considers the costs of administering a program, but not the cost of the facility itself.[6]

The Total Resource Cost (TRC) Test and the Societal Cost Test include the capital cost of renewable energy generation facilities, but do not consider the primary benefit of the facilities—reduced utility bills—and therefore they miss the other half of the evaluation required by Section 2827.1(b)(3). Both tests essentially put reduced utility bills on both sides of the equation, cancelling each other out. A customer's reduced utility bills are seen as a benefit to the customer,

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3 *See id.* at 13 (RIM), 23 (Administrator Test).

4 *See id.* at 13 ("The costs for this test are the program costs incurred by the utility, and/or other entities incurring costs and creating or administering the program, the incentives paid to the participant, decreased revenues for any periods in which load has been decreased and increased supply costs for any periods when load has been increased. The utility program costs include initial and annual costs, such as the cost of equipment, operation and maintenance, installation, program administration, and customer dropout and removal of equipment (less salvage value). The decreases in revenues and the increases in the supply costs should be calculated for both fuels for fuel substitution programs using net savings.").

5 *See id.* ("The Ratepayer Impact Measure (RIM) test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program.").

6 *See id.* at 23 ("The costs for the Program Administrator Cost Test are the program costs incurred by the administrator, the incentives paid to the customers, and the increased supply costs for the periods in which load is increased. Administrator program costs include initial and annual costs, such as the cost of utility equipment, operation and maintenance, installation, program administration, and customer dropout and removal of equipment (less salvage value). For fuel substitution programs, costs include the increased supply costs for the energy-using equipment chosen by the program participant only in the case of a combination utility, as above.").

but are seen as lost revenue to the utility and therefore a cost to be made up by other customers. For NEM, the benefits considered under the TRC and Societal Cost Tests are benefits of the program to all customers, and the language in the next subsection, Section 2827.1(b)(4), addresses those benefits without reference to the facilities themselves.

By asking for consideration of the "benefits of *the* renewable energy generation facility" (emphasis added) in Section 2827.1(b)(3), the clearest interpretation is the benefits of hosting a facility (either by ownership, power purchase agreement (PPA) or lease) rather than the benefits of others customers hosting facilities generally. By analogy, if an individual touts the benefits of *her* electric vehicle, the first consideration is avoidance of gasoline purchases, while the benefits of electric vehicles generally are largely environmental. The TRC and Societal Tests address the general programmatic benefits, while only the Participant Test considers reduced utility bills as a benefit, and indeed the primary benefit, of *the* facility.[7]

5. ***Ensuring that the "total benefits of the standard contract or tariff to all customers and the electrical system are approximately equal to the total costs," in accordance with Public Utilities Code Section 2827.1(b)(4).***

As discussed in response to the prior question, Section 2827.1(b)(4) looks to the total benefits and total costs of the program generally, which is accomplished by use of the TRC or Societal Cost Tests.[8] IREC supports the rationale for using these tests laid out by the Joint Solar Parties, agrees with the Joint Solar Parties list of costs and benefits to consider, and does not repeat those arguments and lists here. However, IREC adds four comments regarding how and

7 *See id.* at 8 (Participant Test), 18 (TRC and Societal Tests).

8 *See id.* at 18.

why to conduct the TRC and Societal Tests to comply with Section 2827.1(b)(4).

a. The RIM is no longer appropriate for analysis of NEM given the availability of NEM.

IREC encourages the Commission to consider the change in the solar energy market since the prior E3 NEM studies as the basis for a shift away from the reliance on the RIM. Particularly in the early days of NEM, the primary model was customer ownership, with cash payments and home equity lines of credit as the primary financing options. There was a legitimate argument that NEM was limited to property owners with ready access to capital and suitable roof space and orientation. Given such a program, the RIM was a reasonable analysis to undertake to assure that customers unable to participate were not subsidizing those who could.

With the availability and predominance of PPAs and leases, financing is widely available, broadening the reach of NEM significantly, and the Multifamily Affordable Solar Housing (MASH) and Single Family Affordable Solar Housing (SASH) programs have enabled a wide swath of the low-income community to net meter. In addition, IREC's CleanCARE proposal (discussed in response to Question 3) would effectively make NEM accessible to CARE customers generally. Likewise, with a small change to the VNEM program (discussed in response to Question 11), NEM would be accessible and utilized by customers in multitenant properties in the same way that MASH customers participate today. NEMA has also provided customers with multiple meters on contiguous property a simple way to meet aggregate requirements with a single renewable energy generation facility. And finally, allowing participation in local renewable energy projects using a NEM model without a requirement that the facility be on the customer's property would essentially open the program to everyone.

IREC suggests the successor to the current NEM program should be broadly accessible, using the approaches just discussed, continuing the trend of the past few years. With a program that is broadly accessible, the impact on "non-participants" is unimportant, because anyone can choose to be a participant. Energy efficiency programs are evaluated using the TRC test for this very reason; any customer can at least buy efficient light bulbs and the Commission has no responsibility to protect customers who choose not to do so.[9] Just as the RIM test is immaterial when considering energy efficiency programs, the RIM test should not play a pivotal role in analysis of NEM or its successor.

b. Facilities with energy storage are likely to be common in the near future, and those facilities are likely to provide greater benefits.

The Public Tool is being built to consider the advent of energy storage and IREC applauds the Commission's foresight. However, it seems that the Public Tool will compartmentalize its results, providing a value of the costs and benefits of solar-only facilities per kilowatt-hour (kWh), and separately providing values for facilities with both solar energy and batteries. IREC expects that the ability to shift loads from low load periods to high load periods will result in significantly higher capacity benefit values for facilities with batteries, more than offsetting losses incurred as batteries are charged and discharged.

In practice, some customers will incorporate batteries and others will not, so conformance with Section 2827.1(b)(4)'s requirement that total costs and total benefits are approximately

9 *See Energy Efficiency Policy Manual* at 17 (v.5 July 2013) ("This Commission relies on the Total Resource Cost Test (TRC) as the primary indicator of energy efficiency program cost effectiveness, consistent with our view that ratepayer-funded energy efficiency should focus on programs that serve as resource alternatives to supply-side options.").

equal requires that the Commission estimate the percentage of facilities that will have batteries and how those batteries will be dispatched.

c. The Societal Cost Test is reasonable to consider given the inability of NEM customers to participate in REC markets.

As noted above, energy efficiency is typically analyzed using the TRC Test, but IREC suggests that the Societal Cost Test is a worthy consideration for any demand-side program, including energy efficiency, NEM and any successor to NEM under consideration. These programs were established in the first place because of societal benefits such as improved environmental conditions and job creation;[10] having created the programs, it is worthwhile to investigate whether they are providing the benefits for which they were established.

In particular, the Renewable Energy Credits (RECs) from current NEM facilities do not qualify for Bucket One under the State's Renewable Portfolio Standard (RPS) though they are obviously in-state renewable energy facilities.[11] Additionally, the low value of the RPS Bucket Three RECs for which NEM facilities qualify, coupled with the complexity of bundling RECs

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10 *See, e.g.*, Cal. Pub. Util. Code § 2827(a) ("The Legislature finds and declares that a program to provide net energy metering . . . is one way to . . . help stabilize California's energy supply infrastructure, enhance the continued diversification of California's energy resource mix, . . and encourage conservation and efficiency.").

All following statutory citations are to the Cal. Pub. Util. Code unless otherwise indicated.

11 *See* D.11-12-052, Decision Implementing Portfolio Content Categories for the Renewables Portfolio Standard Program, R.11-05-005, at 35 (Dec. 21, 2011) (". . . the RECs originally associated with electricity from a DG system that is consumed on-site belong to the system owner. These RECs may be used to support the system owner's product claims (in accordance with the requirements of § 399.25 and CEC rules), but, if not used to support claims of the system owner, they may also be sold as unbundled RECs if all CEC requirements for RPS eligibility and WREGIS tracking are met.") (referring to § 2827(h)(5)(A), D.05-05-011, and D.07-01-018); *see also* CEC Renewables Portfolio Standard Eligibility: Commission Guidebook at 63 (7th ed., April 2013) ("Both the Energy Commission and the CPUC . . . have established that Renewable Energy Credits (RECs) created by a renewable DG facility belongs to the owner of the RPS-eligible facility.").

from thousands of small facilities and assuring accurate measurement data, have effectively precluded NEM customers from selling RECs for RPS compliance at all. RECs are a measure of the environmental benefit of not burning fossil fuels for energy generation, and would be captured in the TRC Test as a participant benefit if sold to the utility or a utility benefit if granted to the utility under the program.[12] Instead, because the customer retains the RECs, no value is ascribed to them at all. IREC suggests that any new program should make RECs readily transferable and in any event, the value of in-state RECs should be counted as a benefit.

d. A cost of service study is a useful check, but should not be the primary measure of whether a program is cost-effective.

The Commission's commitment to rate design and program design based on marginal costs is at odds with full reliance on a cost of service (COS) study. COS studies are a useful way of dividing utility costs between customer classes based on how much of a given utility cost is attributable to a given customer class. For a given program, a COS study answers the question of whether the cost to serve program participants is covered by revenues collected from that group. Avoided cost tests look at marginal costs and answer the question of whether a particular program provides more benefits than costs, with differing tests for differing viewpoints. What the Commission wants to determine is whether the NEM successor program provides net benefits, particularly from the participant, utility and societal perspectives, which is a determination based on marginal costs.

E3 summarized the differences between the two types of studies in its 2013 NEM study

12 *See Standard Practice Manual* at 18, 19-21 (indicating that the TRC evaluates that effects of the program on participants and non-participants, but does not include consideration of environmental externalities).

for Commission as follows:

> " …the avoided cost approach evaluates the marginal cost change associated with the change in usage due to DG, whereas the full cost [of service] approach evaluates the total cost to serve the remaining NEM account usage (net usage). Moreover the full cost of service considers all utility costs, including fixed and historical utility costs, rate surcharges, balancing and memorandum accounts, and costs that are directly attributable to a particular customer or customer group, whereas the avoided cost approach only considers marginal costs."[13]

As the Commission has done in the past, IREC suggests that avoided cost tests should be the primary measure of the costs and benefits of any program. The most striking example of the misguided use of a COS study is for a NEM customer who has reduced her utility bills to zero. The utility claim that has some intuitive appeal is that the customer is getting some benefit from the utility and should pay a "fair" share based on consumption of energy supplied by the utility. However, if that customer's facility is saving the utility money based on a marginal cost analysis, "fair" treatment would seem to be a payment to the customer rather than a charge. Likewise, from a societal perspective, if the benefits outweigh the costs, the customer seems to deserve a credit for the net benefit to society.

6. Inconsistencies that might exist between the results of applying the directive in Section 2827.1(b)(4) and the results of applying the directive in Section 2827.1(b)(3).

As discussed in response to the previous two questions, Sections 2827.1(b)(3) and (4) can easily be read as addressing the need to use the Participant Test and the TRC or Societal Cost

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13 *California Net Energy Metering Ratepayer Impacts Evaluation*, prepared for the California Public Utilities Commission, at 84 (October 2013), *available at* www.cpuc.ca.gov/NR/rdonlyres/75573B69-D5C8-45D3-BE22-3074EAB16D87/0/NEMReport.pdf.

Tests, respectively. The results of the two tests will not be the same, creating the need for the Commission to balance results. A program that passes the TRC Test but fails the Participant Cost Test would be a cost-effective program with few participants, and thereby fail AB 327's directive to assure sustainable growth. A program that fails the TRC Test but passes the Participant Cost Test will entice customers to participate, but could put upward pressure on utility rates.

7. *Consideration and measurement of "significant impact on the distribution grid," and requirements and enforcement for "sized to onsite load" requirements.*

a. *Significant Impact on the Distribution Grid*

By removing the NEM size eligibility limit while still restricting systems to be sized to onsite load, Section 2827.1(b)(5) makes NEM more accessible and appealing to a broader range of customers. It would allow all customers to offset their full loads, including those with loads that require more than a MW generating facility. IREC believes this is fair and appropriate from a policy standpoint.

Section 2827.1(b)(5) restricts participation in the program for facilities larger than one MW to those that "do not have a significant impact on the distribution grid" and are "subject to reasonable interconnection charges established pursuant to Rule 21 and applicable state and federal requirements." IREC distinguishes the impact an individual facility may have, as determined through the interconnection process, from the debate related to NEM facilities' collective reliance and impact on the distribution grid. IREC believes this question focuses on the former issue—the individual impact of a particular NEM facility—whereas the latter issue should be addressed as part of the Commission's determination of the appropriate compensation rate for NEM participants.

Assuming that the current NEM cost waiver would not apply to projects larger than one MW (discussed further below), they will have to pay for their interconnection fees and costs, including the costs of any necessary system upgrades, under Rule 21.[14] This approach is in line with the fundamental principle that an entity should pay the costs it causes, though it is reasonable to waive minor interconnection costs for small systems rather than delaying interconnections while a utility spends additional time calculating its costs. IREC suggests that, once a project passes through the interconnection process and pays for the construction of any necessary upgrades it may cause, it has fixed any "significant impact" it would otherwise have had on the distribution grid. In other words, by paying for any necessary upgrades to the system as part of the interconnection process, an individual project will ultimately not have a "significant impact on the distribution grid," and therefore will meet the requirements of Section 2827.1(b)(5). Therefore, IREC does not believe that any other restrictions are necessary at this time, beyond requiring projects larger than one MW to pay all of their interconnection costs pursuant to Rule 21.

IREC acknowledges and fully supports the Commission's and Legislature's intent to better direct resources to optimal grid locations. Critical to that policy goal, the Commission is exploring the definition of "optimal locations" on the grid within the DRP proceeding (R.14-08-013) pursuant to AB 327.[15] Due to these efforts, the Commission will soon have more useful,

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[14] Rule 21 § E.4 ("An Applicant, or a Producer where those are different entities, is responsible for all fees and/or costs, including Commissioning Testing, required to complete the interconnection process.").

[15] § 769(b).

detailed information regarding the utilities' distribution systems.[16] In turn, this information will help the Commission to define the concept of "optimal location," which will include areas of the grid where projects will "not have significant impacts on the distribution system."[17] IREC notes that the Commission made a prior effort on this front in implementing Section 399.20(b)(3), which requires that feed-in tariff projects be "strategically located." In its decision implementing that program, the Commission stated that "strategically located" means that a generator be: "(1) interconnected to the distribution system, as opposed to the transmission system, and (2) sited near load, meaning in an area where interconnection of the proposed generation to the distribution system requires $300,000 or less of upgrades to the transmission system."[18] IREC suggests that the DRP proceeding will provide data that will allow the Commission to move beyond this definition and refine its conception of "strategically" or "optimally" located. In addition, it will help the Commission, utilities, and other interested stakeholders to develop tariffs and other mechanisms to direct projects to such locations. This could include a mechanism within the NEM program to promote optimally located, greater than one MW projects, for example through price adders or charges.

In the interim, however, IREC urges the Commission to allow projects over one MW sized to onsite load to participate in NEM or the successor program, so long as they pay any

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16 Assigned Commissioner's Ruling on Guidance for Public Utilities Code Section 769—Distribution Resource Planning, R.14-08-013, Att. at 3-5 (Feb. 6, 2015) (requiring integration capacity and locational value analyses).

17 *Id.* Att. at 15 (Feb. 6, 2015) ("In the case of DERs, a location is optimal if: Some quantity of DER can be interconnected without grid upgrades or with low or no interconnection cost, i.e., minimum distribution grid impact. . . .").

18 D.12-05-035, Decision Revising Feed-In Tariff Program, Implementing Amendments to Public Utilities Code Section 399.20 Enacted by Senate Bill 380, Senate Bill 32, and Senate Bill 2 1X and Denying Petitions for modification of Decision 07-07-027 by Sustainable Conservation and Solutions for Utilities, Inc., R. 11-05-005, at 56-59 (May 31, 2012).

appropriate interconnection costs.

b. Sized to Onsite Load

Existing NEM law requires systems to be "intended primarily to offset part or all of the customer's own electrical requirements."[19] Section 2.2.4 of the California Public Utilities Commission California Solar Initiative Program Handbook (CSI Handbook) describes how to interpret and implement this provision in practice.[20] IREC believes that the CSI Handbook offers a reasonable method by which to define "built to the size of onsite load," or at least the appropriate starting point for that definition.

8. Issues that may arise with the interconnection of projects described in Section 2827.1(b)(5) under the rules and charges established in Rule 21.

Under current law, NEM systems receive a waiver for certain interconnection costs.[21] In addition, current law requires a utility to provide a NEM customer with an interconnection agreement within 30 business days from the date the utility receives a completed application.[22] If the utility is unable to process the request, it must notify the NEM customer and the Commission of "the reason for its inability to process the request and the expected completion date."[23] The

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19 § 2827(b)(4)(A).

20 CSI Handbook at 23-24 (Aug. 2014), *available at* www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.PDF.

21 § 2827(g); *see also* Rule 21 §§ E.2.c (Table E-1, showing no fees for NEM interconnections), E.4 ("Generating Facilities eligible for Net Energy Metering under California PUC sections 2827, 2827.8 or 2827.10 are exempt from any costs associated with Distribution or Network Upgrades."). The cost-waiver does not cover interconnection facilities costs.

22 § 2827(e)(2).

23 § 2827(e)(3).

cost waiver has enabled utilities to process high volumes of interconnection applications from NEM customers efficiently, within the 30-day time limit. In particular, by eliminating the back-and-forth regarding costs and potential upgrades that a project would otherwise have to engage in with the utility, the cost waiver has contributed substantially to the efficiency of the interconnection process for NEM systems.[24] This has been a critical component of the interconnection process that has allowed the NEM program and solar market to flourish. Commission Staff has recognized the value of the NEM cost waiver within the interconnection docket (R.11-09-011),[25] and parties in that docket continue to explore ways to make changes to the interconnection process for non-NEM projects to promote similar efficiencies and cost-certainty.

The statute requires that the successor tariff or contract "ensures that customer-sited renewable DG continues to grow sustainably . . . ."[26] This provision implies that utilities will still be expected to process high volumes of customer-sited distribution generation interconnection requests under NEM or any successor paradigm that the Commission establishes. It would be

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24 *See* Rule 21 § D.13.a (allowing a utility to move NEM applicants "from Initial to Supplemental Review to Independent Study Process to further study without waiting for Applicant concurrence, since Applicant is not responsible for payment of study costs."); Cost Certainty for the Interconnection Process, Staff Proposal, R.11-09-011, at 5 (July 18, 2014), *available at* www.cpuc.ca.gov/NR/rdonlyres/9B6BD464-FBF1-4B7E-94F4-08E504012480/0/CostCertaintyFINAL724_2.pdf ("Outside of the NEM program, utilities will not move interconnection process forward until the Fast Track or Detailed Study Review applicant pays for utility created cost estimates. Often, the applicant questions the utility about the cost estimates. Those conversations and meetings cause delays and inefficiencies (process breakdowns) in the interconnection process for the applicant and future queued applicants.").

25 Cost Certainty for the Interconnection Process, Staff Proposal, R.11-09-011, at 4 (July 18, 2014) ("The interconnection process, however, can work more smoothly as demonstrated by Net Energy Metering (NEM) eligible facilities requesting interconnection services. The biggest difference between the process as described above and the process that enables NEM eligible facilities to easily interconnect to the grid is that costs have been removed from the interconnection process under the NEM program creating a frictionless process.").

26 § 2827.1(b)(1).

prudent to maintain the interconnection cost waiver for projects one MW and smaller to avoid disrupting the successful NEM interconnection process and ensure the continued success of the NEM (or successor) program. At the Commission's direction, the utilities have begun tracking the interconnection costs associated with NEM projects.[27] According to the initial reports filed by the utilities in September 2014, these costs appear to be relatively modest.[28] Based on these data, it appears that NEM projects as a whole largely do not cause significant system impacts resulting in high upgrade costs. The cost waiver allows the utility to process these low-impact projects efficiently. In particular, most residential NEM projects do not involve a utility site visit and are largely automated, with interconnection costs likely below $100 on average. For a simple example to show the very minor impact of such a charge, consider a home with a $60 interconnection cost for a six kW facility that will generate 9,000 kWh in a year. Spread over the 25 year project lifetime for a solar array assumed in many studies, this would add a cost substantially below a tenth of a cent per kWh.

If the Commission determines that projects one MW and smaller, or some subset of those projects, should not be subject to a cost waiver and should contribute toward the cost of interconnection, IREC urges the Commission to explore modifications to Rule 21 to allow for these costs to be paid while still maintaining a streamlined interconnection process similar to the process today under the cost waiver. For example, projects could pay a fixed fee at the beginning

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27 *See* D.14-05-033, Decision Regarding Net Energy Metering Interconnection Eligibility for Storage Devices Paired with Net Energy Metering Generation Facilities, R.12-11-005, Ordering ¶¶ 14-16 (May 23, 2014); Resolution E-4610, Ordering ¶ 4 (Sept. 20, 2013); *see also* Joint Advice Letter 3062-E (June 23, 2014) (detailing the NEM interconnection cost categories being tracked pursuant to Resolution E-4610).

28 *See, e.g.*, PG&E AL 4498-E (Sept. 19, 2014) (total costs equating to roughly $240 per interconnected NEM project, and approximately $1.60 per year per customer for PG&E's approximately 5.1 million electric customer accounts); *see also* SCE AL 3103-E & 3103-E-A (Sept. 19, 2014 & Oct. 17, 2014); SDG&E 2650-E (Sept. 19, 2014).

of the process, determined based on the NEM interconnection cost data collected by the utilities. IREC recommends that these projects should continue to avoid the back-and-forth regarding costs that can bog down the interconnection process and be especially problematic for small projects.

In addition, as noted above, IREC suggests that projects larger than one MW should pay for their interconnection costs to ensure they pay for upgrades prior to interconnection to remedy any system impacts the utility determines they would cause. While IREC supports this as an appropriate near-term solution, we also encourage the Commission to continue to work within R.11-09-011 to explore more sophisticated cost allocation methods that result in improved cost certainty and a more streamlined process. This could include some type of fixed-fee approach, such as the one described above. In the longer term, IREC believes that the interconnection process will need to be better integrated into the distribution planning process, which in turn should allow both processes to be optimized and for cost allocation to occur in a fair, efficient way. Specifically, IREC suggests that utilities will need to transition from the reactive, project-by-project cost assessment within the current interconnection process, to a more proactive and holistic planning process that assesses both system needs and distributed energy resources (DER) interconnection needs, and allocates costs among interconnection applicants and all ratepayers appropriately. IREC commends that the Commission on its initial exploration of these issues in both R.11-09-011 and R.14-08-013, and looks forward to continuing discussions in those dockets.

9. Whether a fixed-charge proceeding should include consideration of developing fixed charges for residential customer-generators that may differ from any fixed charges set for all residential customers.

IREC does not believe this proceeding should consider developing fixed charges for customer-generators that differ from those set for non-generators. Additional charges to NEM customers, particularly residential customers, are extremely rare. Most states (29 out of 44 plus the District of Columbia) incorporate a "safe-harbor" provision into their NEM rules that prevent additional charges for NEM customers.[29] Of those that do not provide a safe harbor provision, we are aware of only a small handful of utilities around the country that impose a separate charge on residential customers that is not also required of non-generators. These utilities also operate under different regulatory and statutory settings than those in California.

Safeguards are important to the continuing success of NEM. By its nature, NEM is designed to be a long-term commitment between a utility and a customer-generator and, as such, works best when customers are certain that they will not have unexpected or unreasonable charges imposed on them in the future. Generally, attempts to impose fees on NEM customers arise from claims that NEM customers do not pay their share of infrastructure cost recovery. However, it would be misguided to impose fixed charges on the assumption that NEM customers are simply purchasing fewer kWh than others in their rate class. To be consistent with sound ratemaking practices, any costs directed specifically at NEM customers—and not charged to all customers—would need to be based on a solid and vetted analysis of whether NEM customers differ significantly from other members of their respective class, including low-use and energy efficiency customers, regarding how much it costs to serve them.

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[29] Freeing the Grid, 2014, available at http://freeingthegrid.org/#download-ftg.

A number of states have recently embarked on benefit-cost studies to examine whether an additional charge for NEM customers is warranted. To date, IREC is not aware of any state commissions that have approved charges based on the result of a benefit-cost study. While the Arizona Corporation Commission (ACC) approved the establishment of a small additional monthly charge on some residential customers of Arizona Public Service in late 2013, it actually did so prior to convening a formal proceeding to study the issue.[30] The ACC is currently undertaking a proceeding to consider disputes that surfaced during the proceeding on the monthly charge. Several other utilities around the country have also proposed additional fees on NEM customers, most of which were either withdrawn by the utility or resulted in the commission determining that no charge was warranted based on a lack of compelling evidence put forth by the utility.[31] In short, while this issue is being examined across the country, the overall trend thus far has been to reject additional fees for NEM customers to safeguard the market. As the state of California has always supported a sustainable, renewable energy market, IREC recommends that the Commission continue to do so now by disallowing any additional

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30 ACC Docket No. E-01345A-13-0248 *In the matter of the application of Arizona Public Service Company for approval of net metering cost shift solution*.

31 For example, in Utah (PSC Docket No. 13-035-184) and Idaho (PSC Case No. IPC-E-12-27), regulators declined to allow charges proposed by utilities. In Maine (PUC Case No. 2013-00168) and South Dakota (PUC Case No. EL14-026), proposals were ultimately voluntarily withdrawn by the utility. In Virginia, General Assembly approved monthly standby fees for residential and agricultural customers with systems 10 kW and larger two largest utilities and, as a result, Dominion Virginia (SCC Docket No. PUE-2011-00088) and Appalachian Power (SCC Docket No. PUE-2014-00026, were subsequently permitted to levy standby charges on these customers. In Arizona, while not subject to ACC oversight, the Salt River Project (SRP) recently approved a roughly $50 monthly fee for leased and owned net metering systems installed after December 8, 2014. The fee is now the subject of an anti-trust lawsuit brought against SRP by SolarCity. *See* Justin Doom, *SolarCity Lawsuit Alleges Arizona Utility's Fee Hurts Solar,* Bloomberg Business News (March 3, 2015)*, available at* www.bloomberg.com/news/articles/2015-03-03/solarcity-lawsuit-alleges-arizona-utility-s-fee-will-hurt-solar.

fees for NEM customers.

10. Whether current secondary benefits applicable to NEM customer generators should continue to be available, be terminated or be modified.

As the question notes, NEM systems currently receive a variety of secondary benefits, including in particular exemption from interconnection charges.[32] Without taking a position on whether these exemptions should continue as a matter of law, IREC urges the Commission to consider the value of the interconnection cost waiver from an efficiency standpoint, as discussed in more detail response to Question 8. IREC suggests that the cost waiver be continued for projects one MW or smaller in order to maintain the efficiency benefits associated with the waiver within the interconnection process. We suggest that projects larger than one MW should pay their full interconnection costs. In the longer term, we recommend more comprehensively addressing cost allocation and cost certainty, as well as the integration of the interconnection and distribution planning processes, in dockets R.11-09-011 and R.14-08-013. Specifically, IREC recommends moving away from the current, serial interconnection process, which assesses interconnection costs on a project-by-project basis, and towards a more proactive and integrated distribution planning process that incorporates fair cost allocation between all ratepayers and those that are interconnecting distributed energy resources (DER). This future process should capture the efficiency enabled by the current NEM cost waiver and extend it to all interconnecting DER, while still upholding the cost-causer pays principle and requiring these customers to pay their fair share.

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[32] § 2827(g); *see also* Rule 21 §§ E.2.c (Table E-1, showing no fees for NEM interconnections), E.4 ("Generating Facilities eligible for Net Energy Metering under California PUC sections 2827, 2827.8 or 2827.10 are exempt from any costs associated with Distribution or Network Upgrades.").

11. Whether NEM program variations, including virtual net energy metering (VNEM), multi-family affordable solar housing (MASH) VNM, and NEM aggregation (NEMA), should be terminated or modified.

IREC supports the continuation of VNEM, MASH VNM, and NEMA. In addition, as discussed above in response to Question 5, these programs make NEM broadly accessible to all customers, which supports the use of the TRC test as opposed to the RIM.

As the Commission indicated in its decision to expand VNEM beyond affordable housing, doing so allows "residential, commercial, and industrial customers who now fund CSI through their rates to receive the benefits of the installation of a solar energy system and net energy metering."[33] IREC believes the same logic applies to MASH VNM and NEMA. These three programs should continue because they expand access to renewable energy to more customers. IREC further notes that, while California has been a leader on this front, other states are increasingly adopting meter aggregation and virtual net metering programs with the same goal of allowing more customers to benefit from renewable energy. As of early 2015, 11 states have meter aggregation programs and 9 states plus the District of Columbia have virtual net metering programs in place.[34]

IREC proposes one modification to the VNEM program: the removal of the restriction for

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[33] D.11-07-031, California Solar Initiative Phase One Modifications, R.10-05-004, at 16 (July 20, 2011).

[34] *See* Chelsea Barnes, *Aggregate Net Metering: Opportunities for Local Governments*, published by the U.S. Department of Energy's Solar Outreach Partnership (July 2013), *available at* www.icleiusa.org/action-center/aggregate-net-metering-opportunities-for-local-governments; Database of State Incentives for Renewables and Efficiency (DSIRE), www.dsireusa.org.

Similar to California, IREC defines meter aggregation programs as those allowing one customer with multiple accounts to receive bill credits from a single renewable energy system, and virtual net metering as programs as those allowing multiple customers to receive bill credits from a single renewable energy system.

participation to customers served by the same Service Delivery Point (SDP). The Commission's initial reasoning for including this restriction was to address utilities' concerns related to cross-subsidies and participants paying for the use of the T&D system.[35] With the analysis and potential changes required within this proceeding, the SDP restriction is no longer necessary. The successor tariff or contract to NEM, which will presumably also form the foundation for MASH VNM, VNEM and NEMA, must "[e]nsure that the total benefits of the standard contract or tariff to all customers and the electrical system are approximately equal to the total costs."[36] Therefore, once the successor tariff or contract is in place, the utilities' concerns related to exacerbating underlying cross-subsidies should be alleviated.

To address utility concerns regarding retail wheeling, IREC maintains its position that, so long as VNEM is limited to contiguous parcels managed as part of the same development, even if divided by a street, highway, public thoroughfare or railway, the use of the grid would be negligible.[37] The Commission relied on similar logic in the same decision in removing the SDP restriction from the MASH VNM tariff.[38] In doing so, it recognized that the "limitation that VNM credits may only be shared if served by a single SDP hampers our ability to meet this goal

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[35] D.11-07-031 at 16.

[36] 2827.1(b)(4).

[37] D.11-07-031 at 14.

[38] D.11-07-031 at 12-13 ("PG&E raises valid concerns over wheeling and the use of the transmission and distribution grid. However, its own VNM tariff contains limiting language to reduce the extent to which such wheeling would occur. Namely, any sharing of credits would be limited to a single enterprise on contiguous parcels. The parcels may be divided by a street, highway or public thoroughfare, as long as they are otherwise contiguous and part of the same low income housing enterprise, and all under the same ownership.")

The Commission lifted the SDP limitation but required that the affordable housing development be "a single enterprise on contiguous parcels under the same ownership," allowing for parcels to be "divided by a street, highway or public thoroughfare as long as they are otherwise contiguous, part of the same enterprise, and under the same ownership." D.11-07-031 at 13.

[to allocate the benefits of solar energy systems to all tenants on the affordable housing property] and has jeopardized otherwise viable projects."[39] Based on conversations with industry representatives and others, IREC believes that the SDP restriction is having the same negative effect on the VNEM program, limiting its ability to expand access to renewable energy to more customers.

IREC urges the Commission to remove the SDP limitation from the VNEM program and instead limit it only geographically. This would be consistent with the rules for both the MASH VNM program, as described above, as well as the rules for NEM aggregation.[40] While we do not believe a charge for sharing across SDPs would be necessary under the proposed, narrow geographic restrictions, we note that the Commission indicated that this would be an option for consideration in the future.[41] If the Commission pursues this idea, IREC suggests that any charge should be based in data regarding the true impact and cost of use in the system in these limited circumstances. IREC believes such costs would be so negligible as not to warrant the resources it would take to calculate them.

IREC would also be supportive of extending both VNEM and NEMA participation to meters on the same feeder. Such an extension would allow, for example, a school to aggregate meters associated with an administrative building and a storage building that may be separate by a city block or two. Similarly, it would allow a group of neighbors on a single city block to

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[39] D.11-07-031 at 13.

[40] *See* SB 594 (Wolk 2012), § 2827(h)(4)(A) ("An eligible customer-generator with multiple meters may elect to aggregate the electrical load of the meters located on the property where the renewable electrical generation facility is located and on all property adjacent or contiguous to the property on which the renewable electrical generation facility is located, if those properties are solely owned, leased, or rented by the eligible customer-generator."); *see also* Res. E-4610 (Sept. 19, 2013) (implementing SB 594).

[41] D.11-07-031 at 16.

participate in VNEM. IREC recognizes that this extension may present a more compelling case for consideration of a wheeling-related charge. We believe, however, that even in this instance participants' use of the distribution system and the associated charge would in most cases be minimal, based in many cases on a fair share of building and maintaining a few hundred feet of distribution line.

12. What consumer protection issues the Commission should consider as part of the successor standard contract/tariff.

Solar facility warranty requirements have previously been imposed for the CSI program, in part to ensure that systems would perform as expected. As the solar market has matured, equipment warranties are generally standard and should be part of the consumer decision-making process, rather than a NEM application process. For example, most customers would not purchase a refrigerator without a warranty, nor would they purchase a solar energy system without one. Warranty requirements are thus an unnecessary part of the process and are no longer needed to provide a guarantee of performance. For utilities and developers who process thousands of applications annually, they can also be an administrative burden to verify. As a result, IREC recommends waiving any type of warranty requirement for a NEM successor contract/tariff.

California's interconnection rules specify the national certifications that equipment must carry (i.e., UL 1741, IEEE 1547) in order to operate safely. Additionally, the California Energy Commission (CEC) maintains a list of approved equipment so that installers and customers have an understanding of what equipment will pass interconnection screens. IREC would consider any equipment requirements beyond those specified in California's Rule 21 interconnection process, implemented in the name of consumer protection, to be redundant and unnecessarily burdensome to the administrative process.

13. What impact any consumer protections have on the total costs and benefits of the successor standard contract/tariff.

As mentioned in question 12, the CEC already maintains an approved equipment list and the State's interconnection rules specify the national certifications that grid-connected equipment must carry. Continuing to maintain this approved equipment list would represent a *de minimis* cost, particularly when distributed among all interconnected systems. IREC does not believe these ongoing consumer protection measures would represent any increase in costs.

14. How considerations of safety should be included in the development of the successor standard contract/tariff.

California's Rule 21 interconnection procedures have been rigorously developed to ensure a safe and reliable distribution grid. IREC believes that all safety concerns are thoroughly addressed in the interconnection and inspection processes, and that no further safety regulations are needed in a NEM successor contract/tariff. Based in part on IREC's early involvement in the development of NEM and interconnection rules across the country, safety considerations are always addressed in interconnection procedures, while NEM (or its successor) is simply a billing arrangement that does not require safety measures.

III. Conclusion

IREC appreciates the opportunity to weigh in on these important issues.

Respectfully submitted at Oakland, California,

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